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ABSTRACT

A REPORT IS PRESENTED OF PROJECTED NEEDS FOR PHYSICAL FACILITIES AND CAPITAL OUTLAY FOR PROGRAMS OF INSTRUCTION AND RESEARCH IN THE 13 STATE-CONTROLLED FOUR-YEAR COLLEGES AND UNIVERSITIES OF VIRGINIA. THE REPORT INCLUDES NOT ONLY GENERAL DATA ON THE EXTENT OF PHYSICAL PLANT FACILITIES AND THE UTILIZATION OF INSTRUCTIONAL SPACE, BUT ALSO SOME DETAILED NOTES ON THE MAJOR BUILDINGS AT EACH OF THE INSTITUTIONS. ESTIMATES OF FUTURE NEEDS ARE INCLUDED FOR CLASSROOMS, TEACHING LABORATORIES, FACULTY OFFICES, LIBRARIES, RESEARCH SPACE, AND REPLACEMENT AND REMODELING OF OBSOLETE SPACE. (FS)

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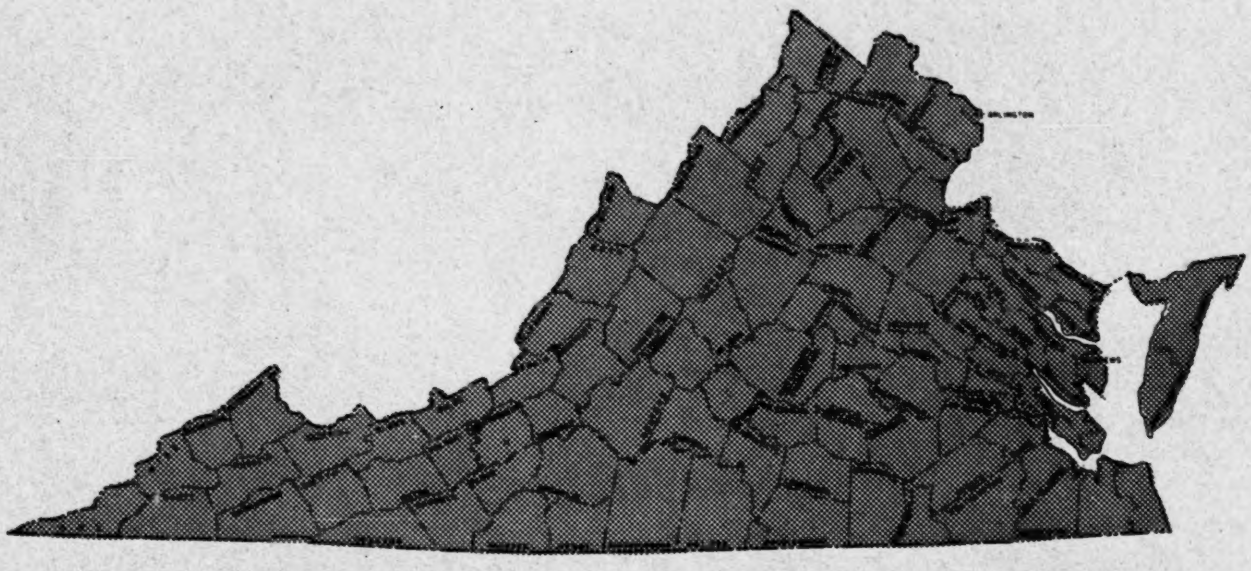
INSTRUCTIONAL PLANT FACILITIES IN VIRGINIA'S INSTITUTIONS OF HIGHER EDUCATION

Staff Report #10

VIRGINIA HIGHER EDUCATION STUDY COMMISSION



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RICHMOND, VIRGINIA
1965

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Staff Report #10

INSTRUCTIONAL PLANT FACILITIES IN VIRGINIA'S INSTITUTIONS OF HIGHER EDUCATION

By

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RICHMOND, VIRGINIA

1965

FOREWORD

The Virginia General Assembly in 1964, under Senate Joint Resolution No. 30, authorized the Governor to appoint a Commission on Higher Education, and directed the Commission ". . . to undertake a comprehensive study and review of higher education, to be used as a basis for effective long-range planning as to objectives, needs, and resources of public and private higher education in the Commonwealth of Virginia." The members appointed to the Commission are listed on the title page of this volume. The Commission selected a staff for carrying on the Study and approved an outline of the topics to be covered. Several of these topics required the collection and interpretation of extensive data; the detailed analyses of the problems led, in many cases, to suggestions for their solution. The results of these detailed studies, prepared by staff members and consultants, are published as Staff Reports, to make the information generally available.

Staff Report #10, published herewith, is concerned with the plant facilities for the instructional and research programs in the state-controlled institutions of higher education in Virginia. The preparation of the Report has been the work of two Consultants, Dr. John X. Jamrich, Associate Dean of the College of Education, Michigan State University, and Dr. Harold L. Dahnke, Director of Space Utilization, Michigan State

University. Each of these consultants has had extensive experience in studying the physical plants of colleges and universities, and projecting the needs of such institutions for physical plant developments, and in setting up long-range, state-wide programs for physical plant facilities for higher education in a number of states.

Data concerning the physical plants of the state-controlled colleges and universities of Virginia were collected for use by the Consultants on special forms prepared by the staff of the Higher Education Study Commission. The State Council of Higher Education made available the data it had collected in the fall of 1964 on the utilization of instructional space in the Virginia institutions. The State Budget Office also supplied certain data from its files concerning the physical plants of the state-controlled institutions.

One or both of the Consultants visited each of the four-year degree-granting state-controlled institutions of higher education in Virginia during the early summer of 1965. They spent sufficient time at each institution to get well acquainted with the features of its physical plant. They were able to discuss plans for future plant development with the appropriate officials of each institution. From their own observations they could appraise these plans, and coordinate the needs in one institution with those of the others visited.

The Report includes not only the general data on extent of physical plant facilities, and the utilization of instructional space, but also some fairly detailed notes on the major buildings at each of the institutions.

The institutions extended every possible cooperation in the preparation of the Report on physical plants. The data requested were provided, and access was given to all necessary records. The Consultants and the staff of the Commission acknowledge with thanks the fine cooperation given this Study by the personnel of the institutions. Thanks are also due to the staff of the State Budget Office for the careful and diligent manner in which data on file in that Office were abstracted for use by the Consultants.

The text of Staff Report #10 presents only the findings and interpretations of the authors, Dr. Jamrich and Dr. Dahnke. The Report has been reviewed by the Higher Education Study Commission but the release of the Report does not imply an endorsement by the Commission of any suggestions and recommendations herein contained.

John Dale Russell
Director of the Study

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AUTHORS' INTRODUCTION

More than at anytime in this nation's history, education has become a topic of major concern. And rightfully so, for the implications of educational opportunity at all levels are readily recognizable. This widespread concern, resulting also from pressures of increasing enrollments and their fiscal implications, has provided some compelling reasons for systematic study and planning in education. In particular, higher education with its character of diversity, has felt the need to develop its future plans on the basis of careful studies.

This Report on physical facilities and capital outlay needs of the state-controlled colleges and universities in the Commonwealth of Virginia is a portion of such a major state survey of higher education. These studies should provide the General Assembly, the Governor, and others who are interested in or responsible for higher education, valuable information for planning the future needs of higher education in the State.

Programs of instruction, research, and service in the colleges and universities of Virginia need appropriate physical facilities. The magnitude of the projected enrollment increases, and the recognition of the need to expand fundamental research in higher education, bring with them fiscal implications which suggest careful assessments of present facilities--their adequacy, the intensity of their use, and the need for replacements, improvements, extensions, and new structures.

This Report was undertaken with the following specific questions as guides:

1. What are the projected needs for instructional and research facilities in Virginia?
2. What is the extent of existing physical facilities in the four-year state-controlled institutions of higher education?
3. How adequate are the existing facilities?
4. How efficiently are present instructional facilities being used?
5. To what extent can improved utilization of instructional facilities meet the growing demands for additional space?
6. After account is taken of the possibility of more efficient use of existing plants, what additional facilities will be required between 1965 and 1980 to provide for increased enrollments, research, and the replacement of obsolete parts of the physical plants?

Staff Report #10 is concerned with projected needs for physical facilities and capital outlay for programs of instruction and research in the 13 state-controlled four-year colleges and universities of Virginia. The several two-year branches operated by three of these institutions are not included in this Report, nor are the institutions operated under private control.

Specifically, the Report includes estimates of needs for classrooms, teaching laboratories, faculty offices, library, research space, and replacement and remodeling of obsolete space. Excluded from the Study are medical facilities, residence halls, cost of land acquisition, and certain other non-instructional facilities.

The procedure used in determining the facilities and capital outlay projections was as follows:

1. A determination was made of college-age youth and college enrollments for the next 15 years in Virginia. The population and college enrollment projections used in this Study are those provided by the Director of the Higher Education Study Commission.
2. These projected college enrollments in the State will be served by both privately controlled and state-controlled institutions. Hence a tabulation was made of the past enrollments in privately controlled and state-controlled institutions. This was used as a basis for estimating the proportion of future enrollments which will probably be taken care of by state-controlled and privately controlled institutions.
3. An inventory of the instructional-related facilities at each of the institutions was made by means of a brief data-gathering instrument distributed through the office of the Higher Education Study Commission. Information was obtained regarding the extent of the facilities, the intensity of their use, adequacy, quality, cost, and source of building funds.

4. Personal visits were made by the authors of Staff Report #10 to each of the 13 campuses, in order to review the reports made by each of the institutions. These visits provided an opportunity to see, firsthand, the buildings on the campuses, especially those reported as inadequate, and to acquaint the Consultants with the capital outlay requests and campus plans of the several institutions.
5. A complete utilization study for the fall term of 1964 was made by the State Council of Higher Education in Virginia. The data of their study and the data submitted by the individual institutions were used in preparing this Report.

The procedure permits the indicated needs for serving increased enrollments and for replacement of facilities to be set side by side with certain assumptions concerning increased utilization of existing facilities as a basis for the projections of the Report.

The authors of this Report wish to underscore the inseparability of facilities and the programs to be housed in them. Thus, the extent of and the levels of utilization are clearly a function of the program. This Report suggests certain levels of utilization, not because these should become universal and firm, but simply to provide a frame of reference. Variation in utilization is to be expected as there is variation in instructional programs.

Virginia, like most other states, must provide in its institutions of higher education deliberate support for research. Support for research involves the financing of appropriate plant facilities. This Report, even though completely detailed data were not available on existing research space, has made some projections of the need for such space because of the importance attached to these programs.

Finally, the authors of this Report wish to acknowledge the excellent cooperation accorded by the personnel of the individual institutions and by the staffs of the Higher Education Study Commission and the State Council of Higher Education.

CHAPTER I

COLLEGE-AGE POPULATION AND COLLEGE ENROLLMENTS

Future enrollments in institutions of higher education in the Commonwealth of Virginia will depend upon the number of college-age youth, the proportion of these college-age youth who will actually attend, and the extent to which the term "college-age" will tend to include older and older people as the emphasis on graduate study is realized.

Projections of college-age youth for the next 15 years are readily possible; these young people are already living and many have begun their formal education. The college-age and college enrollment projections used in this Report were based on detailed data in the Commission's Staff Report #2, pages 50-55, "State-wide Pattern of Higher Education in Virginia."

Table 1 is a summary of the college-age population (18-21 years of age) and college enrollments in Virginia from 1950 through 1964, with projections to 1980. The projections suggest that total enrollments in all Virginia colleges and universities will almost double between 1964 and 1975.

It may be pointed out that the enrollment estimates for Virginia may prove to be too conservative, as has been the case in a number of other states where similar enrollment projections have been made in the past. None of the major population centers of Virginia is at present served by

Table 1. COLLEGE-AGE POPULATION AND COLLEGE ENROLLMENTS FOR THE COMMONWEALTH OF VIRGINIA, 1950-1964 AND PROJECTIONS TO 1980[a]

Year	College-Age Population (18-21 year olds)	College Enrollments	Percentage that College Enrollments are of College-Age Population
1950	204,000	33,666	16.5
1955	198,000	42,977	21.7
1960	217,000	57,986	26.7
1962	244,000	65,944	27.0
1964	258,000	78,041	30.2
1966	291,000[b]	94,866[b]	32.6[b]
1968	324,000[b]	113,400[b]	35.0[b]
1970	323,000[b]	120,802[b]	37.4[b]
1975	351,000[b]	152,334[b]	43.4[b]
1980	368,000[b]	181,792[b]	49.4[b]

[a] See James R. Connor, Staff Report #2, State-wide Pattern of Higher Education in Virginia, Table 9, page 51. Higher Education Study Commission, Richmond, Va., August 1965.

[b] Estimates.

a comprehensive state-controlled university; one may expect that, if and when one or more such institutions are developed, the percentage of youth from those areas attending college in Virginia will increase sharply, thus increasing total enrollments.

The projection of the needs of the state-controlled institutions in Virginia for plant facilities must reflect some estimate of the proportion of college enrollments which will be cared for by privately controlled institutions. As a basis for estimating the proportion of college enrollments which might be expected in the privately controlled and state-controlled institutions during the next 15 years, a summary was made of past enrollments in the two sectors of higher education in Virginia. Table 2 presents the data for selected years beginning with 1940. The percentage of students attending the state-controlled institutions has been increasing steadily since 1953, having moved from 56. 3 to 70. 6 in 1964. The trend in Virginia, as in most other states, is toward providing for enrollment increases more and more through publicly controlled institutions of higher education.

On the basis of the data, and considering the general trend to provide increasingly for enrollments in state-controlled institutions, the authors have made estimates, shown in Table 3, for the period 1966 through 1980. Table 3 estimates that the proportion of students attending state-controlled institutions in Virginia will increase from the present 70. 6 per cent to 80. 0 per cent by 1980. Total enrollments in the state-controlled institutions are estimated to move from the current 55, 000 to

Table 2. ENROLLMENT IN VIRGINIA'S COLLEGES AND UNIVERSITIES, 1940-1964 (Fall Term Head Count)[a]

Type of Institution		1940	1950	1953	1960	1964
State-Controlled	Number	15,199	19,906	18,111	39,789	55,167
	Per Cent	58.1	59.1	56.3	68.6	70.6
Privately Controlled	Number	10,957	13,760	14,026	18,197	22,874
	Per Cent	41.8	40.8	43.6	31.3	29.3
Total		26,157	33,666	32,137	57,986	78,041

[a] U. S. Office of Education, *Opening (Fall) Enrollment*, 1950, 1953, 1960, and 1964; 1940 data from Bienial Survey of Education. See also E. F. Schietinger, *Fact Book on Higher Education in the South, 1965*, Table 9, page 18, published by Southern Regional Education Board, Atlanta, 1965.

Table 3. TOTAL ENROLLMENTS, FALL 1964, FOR STATE-CONTROLLED AND PRIVATELY CONTROLLED INSTITUTIONS OF HIGHER EDUCATION IN VIRGINIA, AND PROJECTIONS TO 1980

Type of Institution		1964	1966	1968	1970	1975	1980
State-Controlled	Number	55,167	68,303	82,782	89,393	115,773	145,433
	Per Cent	70.6	72.0	73.0	74.0	76.0	80.0
Privately Controlled	Number	22,874	26,563	30,618	31,409	36,561	36,359
	Per Cent	29.3	28.0	27.0	26.0	24.0	20.0
Total[a]		78,041	94,866	113,400	120,802	152,334	181,792

[a] From James R. Connor, State-wide Pattern of Higher Education in Virginia Staff Report #2, Table 9, page 51. Virginia Higher Education Study Commission, August 1965.

over 89,000 by 1970, to more than 115,000 by 1975, and to more than 145,000 by 1980. In broad terms, this means that the enrollments in the state-controlled institutions will double by 1975 and triple by 1980.

The data in Table 3 for state-controlled institutions include the two-year as well as the four-year colleges. The present Report is concerned chiefly with the four-year colleges and universities, inasmuch as the needs of the publicly controlled two-year institutions have been treated in Staff Report #4. It is desirable to have some estimate of the extent to which the projected future enrollments in publicly controlled institutions will be accommodated in each type of institution, the two-year and the four-year. These projections are shown in Table 4.

The projections in Table 4 for the two-year publicly controlled colleges are based on data in Staff Report #4, Table 12, where the estimates made by the directors of the two-year colleges concerning their future enrollment trends are shown. In Table 4 the enrollments of the two-year colleges for 1964 are those actually reported by the institutions; for the subsequent years to 1980 the totals are based only on the projections by those two-year colleges that did not indicate an expectation of becoming four-year institutions. Thus the figures for 1970, 1975, and 1980 for four-year institutions, as shown in Table 4, include not only the present four-year state-controlled colleges and universities, but also certain present two-year colleges that expect to become four-year, plus any and all new institutions, both two-year and four-year, that may be established between 1965 and 1980.

Table 4. ENROLLMENTS, FALL 1964, FOR FOUR-YEAR AND TWO-YEAR STATE-CONTROLLED INSTITUTIONS OF HIGHER EDUCATION IN VIRGINIA, AND PROJECTIONS TO 1980

	1964	1970	1975	1980
Four-year Colleges and Universities	51,853	82,538	105,273	131,133
Two-year Colleges[a]	3,314	6,855[b]	10,500[b]	14,300[b]
Total	55,167[c]	89,393	115,773	145,433

[a] Based on Staff Report #4, Table 12, page 52.

[b] Omitting those expecting to become four-year colleges.

[c] Data from U. S. Office of Education, Opening (Fall) Enrollment, 1964.

Table 4 merely reinforces the conclusion drawn from Table 3, to the effect that, in its publicly controlled colleges and universities (including the present four-year institutions, present two-year colleges that may become four-year, and any new colleges of either type that may be established) Virginia must provide facilities for more than double the present number of students by 1975, and for continued increases in enrollments at least through 1980. The present physical plants of the state-controlled colleges and universities have been built, for the most part during the past fifty or seventy-five years. These facilities will have to be duplicated in a single decade--a challenging but not impossible task.

CHAPTER II

EXTENT OF PRESENT INSTRUCTIONAL FACILITIES

For the purposes of this Report, there was conducted an inventory of non-residential buildings on the campuses of the state-controlled colleges and universities. Data requested included: date of construction and remodeling, type of construction, condition of the building, present use, suitability for present use, book value, sources of funds, and the gross area and volume of the building.

The amount of instructional space reported by the several institutions is summarized in Table 5; details for each of the institutions are shown in Tables 6 through 18. Separate categories are shown for general classrooms, teaching laboratories, seminar rooms, and auditoriums. Table 19 lists all the institutions, and reports the square feet of each kind of space per full-time-equivalent student.

The Virginia institutions reported a total of over one million square feet of instructional space. Of this all but 100, 000 square feet are in the classrooms and laboratories. The average size of room is 847 square feet, with an average of 26. 2 square feet of instructional space per student enrolled, and 21. 5 square feet per student station.

Table 5. EXTENT OF INSTRUCTIONAL SPACE AT ALL (13) FOUR-YEAR STATE-CONTROLLED INSTITUTIONS IN VIRGINIA, FALL 1964

Item	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Number of Rooms	779	71	506	39	1,395
Number of Student Stations	32,107	1,451	13,991	7,395	54,944
Sq. Ft. of Assignable Space	546,661	32,789	526,553	75,485	1,181,488
Average Size of Rooms (Sq. Ft.)	701	461	1,041	1,936	847
Sq. Ft. Per Student Enrolled (Head Count On-Campus-45,057)	12.1	.72	11.7	1.7	26.2
Sq. Ft. Per Student Station	17.0	22.6	37.6	10.2	21.5

Table 6. EXTENT OF INSTRUCTIONAL SPACE AT THE COLLEGE OF WILLIAM AND MARY, FALL 1964

Item	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Number of Rooms	52	6	30	7	95
Number of Student Stations	1,925	105	800	1,297	4,127
Sq. Ft. of Assignable Space	33,710	2,394	25,524	12,065	73,693
Average Size of Rooms (Sq. Ft.)	648	399	851	1,724	776
Sq. Ft. per Student Enrolled (Head Count On-campus-3505)	9.6	.7	7.3	3.4	21.0
Sq. Ft. per Full-time-equivalent Enrollment - 3,050	11.1	.8	8.4	4.0	24.3
Sq. Ft. per Student Station	17.5	22.8	31.9	9.3	17.9

Table 7. EXTENT OF INSTRUCTIONAL SPACE AT LONGWOOD COLLEGE, FALL 1964

Item	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Number of Rooms	50	5	28	-	83
Number of Student Stations	1,771	112	659	-	2,542
Sq. Ft. of Assignable Space	30,536	2,381	22,340	-	55,257
Average Size of Rooms (Sq. Ft.)	611	476	798	-	666
Sq. Ft. per Student Enrolled (Head Count On-campus-1,468)	20.8	1.6	15.2	-	37.6
Sq. Ft. per Full-time-equivalent Enrollment-1,578	19.4	1.5	14.2	-	35.1
Sq. Ft. per Student Station	17.2	21.2	33.9	-	21.7

Table 8. EXTENT OF INSTRUCTIONAL SPACE AT MADISON COLLEGE, FALL 1964

Item	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Number of Rooms	33	-	33	2	68
Number of Student Stations	1,128	-	593	271	1,992
Sq. Ft. of Assignable Space	22,683	-	22,547	2,680	47,910
Average Size of Rooms (Sq. Ft.)	687	-	683	1,340	705
Sq. Ft. per Student Enrolled (Head Count On-campus-2,002)	11.3	-	11.3	1.3	24.0
Sq. Ft. per Full-time-equivalent Enrollment-1,991	11.4	-	11.3	1.3	24.0
Sq. Ft. per Student Station	20.1	-	38.0	9.9	24.1

Table 9. EXTENT OF INSTRUCTIONAL SPACE AT MARY WASHINGTON COLLEGE, FALL 1964

Item	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Number of Rooms	56	8	33	-	97
Number of Student Stations	2,162	178	798	-	3,138
Sq. Ft. of Assignable Space	35,171	4,949	24,206	-	64,326
Average Size of Rooms (Sq. Ft.)	627	618	735	-	662
Sq. Ft. per Student Enrolled (Head Count On-campus-1,788)	19.7	2.8	13.5	-	36.0
Sq. Ft. per Full-time-equivalent Enrollment-1,889	18.6	2.6	12.8	-	34.0
Sq. Ft. per Student Station	16.3	27.8	30.3	-	20.5

Table 10. EXTENT OF INSTRUCTIONAL SPACE AT THE MEDICAL COLLEGE OF VIRGINIA, FALL 1964

Item	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Number of Rooms	21	8	23	3	55
Number of Student Stations	1,703	159	1,506	524	3,892
Sq. Ft. of Assignable Space	20,026	3,133	42,709	4,654	70,522
Average Size of Rooms (Sq. Ft.)	954	392	1,857	1,551	1,282
Sq. Ft. per Student Enrolled (Head Count On-campus-1,338)	15.0	2.3	32.0	3.5	52.7
Sq. Ft. per Full-time-equivalent Enrollment-1,355	14.8	2.3	31.5	3.4	52.0
Sq. Ft. per Student Station	11.8	19.7	28.4	8.9	18.1

Table 11. EXTENT OF INSTRUCTIONAL SPACE AT OLD DOMINION COLLEGE, FALL 1964

Item	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Number of Rooms	53	2	37	3	95
Number of Student Stations	2, 046	38	987	320	3, 391
Sq. Ft. of Assignable Space	35, 907	750	36, 663	4, 440	77, 760
Average Size of Rooms (Sq. Ft.)	677	375	991	1, 480	819
Sq. Ft. per Student Enrolled (Head Count On-campus-6, 648)	5. 4	. 1	5. 5	. 7	11. 7
Sq. Ft. per Full-time-equivalent Enrollment-4, 082	8. 8	. 2	9. 0	1. 1	19. 1
Sq. Ft. per Student Station	17. 5	19. 7	37. 1	13. 9	22. 9

Table 12. EXTENT OF INSTRUCTIONAL SPACE AT RADFORD COLLEGE, FALL 1964

Item	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Number of Rooms	39	-	17	-	56
Number of Student Stations	1,328	-	411	-	1,739
Sq. Ft. of Assignable Space	26,266	-	20,419	-	46,685
Average Size of Rooms (Sq. Ft.)	674	-	1,201	-	834
Sq. Ft. per Student Enrolled (Head Count On-campus-2,443)	10.8	-	8.4	-	19.1
Sq. Ft. per Full-time-equivalent Enrollment-1,684	15.6	-	12.1	-	27.7
Sq. Ft. per Student Station	19.8	-	49.7	-	26.8

Table 13. EXTENT OF INSTRUCTIONAL SPACE AT RICHMOND PROFESSIONAL INSTITUTE, FALL 1964

Item	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Number of Rooms	51	3	62	2	118
Number of Student Stations	2,260	90	1,525	245	4,120
Sq. Ft. of Assignable Space	31,181	1,288	60,254	2,189	94,912
Average Size of Rooms (Sq. Ft.)	611	429	972	1,095	804
Sq. Ft. per Student Enrolled (Head Count On-campus-6,439)	4.8	.2	9.4	.3	14.7
Sq. Ft. per Full-time-equivalent Enrollment-3,786	8.2	.3	15.9	.6	25.0
Sq. Ft. per Student Station	13.8	14.3	39.5	8.9	23.0

Table 14. EXTENT OF INSTRUCTIONAL SPACE AT THE UNIVERSITY OF VIRGINIA, FALL 1964

Item	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Number of Rooms	123	32	41	10	206
Number of Student Stations	6,577	658	1,561	2,668	11,464
Sq. Ft. of Assignable Space	108,474	14,396	46,107	29,277	198,254
Average Size of Rooms (Sq. Ft.)	882	450	1,125	2,928	962
Sq. Ft. per Student Enrolled (Head Count On-campus-6,600)	16.4	2.2	7.0	4.4	30.0
Sq. Ft. per Full-time-equivalent Enrollment-6,324	17.2	2.3	7.3	4.6	31.4
Sq. Ft. per Student Station	16.5	21.9	29.5	11.0	17.3

Table 15. EXTENT OF INSTRUCTIONAL SPACE AT VIRGINIA MILITARY INSTITUTE, FALL 1964

Item	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Number of Rooms	79	-	27	3	109
Number of Student Stations	2, 385	-	1, 092	592	4, 069
Sq. Ft. of Assignable Space	50, 782	-	37, 441	5, 639	93, 862
Average Size of Rooms (Sq. Ft.)	643	-	1, 387	1, 880	861
Sq. Ft. per Student Enrolled (Head Count On-campus-1, 189)	42. 7	-	31. 5	4. 7	78. 9
Sq. Ft. per Full-time-equivalent Enrollment-1, 291	39. 3	-	29. 0	4. 4	72. 7
Sq. Ft. per Student Station	21. 3	-	34. 3	9. 5	23. 1

Table 16. EXTENT OF INSTRUCTIONAL SPACE AT VIRGINIA POLYTECHNIC INSTITUTE, FALL 1964

Item	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Number of Rooms	149	3	99	5	256
Number of Student Stations	6, 263	47	2, 450	841	9, 601
Sq. Ft. of Assignable Space	106, 647	1, 630	117, 672	8, 378	234, 327
Average Size of Rooms (Sq. Ft.)	716	543	1, 189	1, 676	915
Sq. Ft. per Student Enrolled (Head Count On-campus-6, 510)	16. 4	. 3	18. 1	1. 3	36. 1
Sq. Ft. per Full-time-equivalent Enrollment-6, 643	16. 1	. 2	17. 7	1. 3	35. 3
Sq. Ft. per Student Station	17. 0	34. 7	48. 0	10. 0	24. 4

Table 17. EXTENT OF INSTRUCTIONAL SPACE AT VIRGINIA STATE COLLEGE AT PETERSBURG, FALL 1964

Item	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Number of Rooms	37	3	53	2	95
Number of Student Stations	1,374	36	1,004	352	2,766
Sq. Ft. of Assignable Space	22,526	1,190	53,549	3,427	80,692
Average Size of Rooms (Sq. Ft.)	609	397	1,010	1,714	849
Sq. Ft. per Student Enrolled (Head Count On-Campus-1,814)	12.4	.7	29.5	1.9	44.9
Sq. Ft. per Full-time-equivalent Enrollment-1,511	15.0	.8	35.4	2.3	53.5
Sq. Ft. per Student Station	16.4	33.1	53.3	9.7	29.2

Table 18. EXTENT OF INSTRUCTIONAL SPACE AT VIRGINIA STATE COLLEGE AT NORFOLK, FALL 1964

Item	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Number of Rooms	36	1	23	2	62
Number of Student Stations	1,185	28	605	285	2,103
Sq. Ft. of Assignable Space	22,752	678	17,122	2,736	43,288
Average Size of Rooms (Sq. Ft.)	632	678	744	1,368	698
Sq. Ft. per Student Enrolled (Head Count On-campus-3,313)	6.9	.7	5.2	.8	13.1
Sq. Ft. per Full-time-equivalent Enrollment-2,004	11.4	.3	8.5	1.4	21.6
Sq. Ft. per Student Station	19.2	24.2	28.3	9.6	20.6

Table 19. SQUARE FEET OF INSTRUCTIONAL SPACE PER FULL-TIME-EQUIVALENT STUDENT, FALL TERM 1964, IN EACH STATE-CONTROLLED INSTITUTION OF HIGHER EDUCATION IN VIRGINIA

Institutions	Full-time-equivalent Enrollment	Square Feet of Instructional Space per F. T. E. Student				
		General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
The College of William and Mary	3,050	11.1	.8	8.4	4.0	24.3
Longwood College	1,578	19.4	1.5	14.2	-	35.1
Madison College	1,991	11.4	-	11.3	1.3	24.0
Mary Washington College	1,889	18.6	2.6	12.8	-	34.0
Medical College of Virginia	1,355	14.8	2.3	31.5	3.4	52.0
Old Dominion College	4,082	8.8	.2	9.0	1.1	19.1
Radford College	1,684	15.6	-	12.1	-	27.7
Richmond Professional Institute	3,786	8.2	.3	15.9	.6	25.0
University of Virginia	6,324	17.2	2.3	7.3	4.6	31.4
Virginia Military Institute	1,291	39.3	-	29.0	4.4	72.7
Virginia Polytechnic Institute	6,643	16.1	.2	17.7	1.3	35.3
Virginia State College-Petersburg	1,511	15.0	.8	35.4	2.3	53.5
Virginia State College-Norfolk	2,004	11.4	.3	8.5	1.4	21.6

The data for Tables 6 through 18 show rather wide variations. On the average number of square feet per student enrolled (head count), there is a variation from a low of 11. 7 at Old Dominion College to a high of 78. 9 at Virginia Military Institute. On the basis of full-time-equivalent students the same institutions are at the extremes (see Table 19). On the number of square feet per student station the variation is from a low of 17. 3 at the University of Virginia to a high of 29. 2 at Virginia State College at Petersburg.

Faculty Office Space

An important space provision, which must be made in college physical plants in addition to space directly used in instruction, is office accommodations for members of the faculty. For use in this Report, the individual institutions provided data regarding the existing office space, including the number of offices, the total square feet of offices, and the number of staff members occupying them. Table 20 summarizes these data.

The average number of square feet per occupant is 109; the average number of square feet per office is a little more than 185. These averages are quite reasonable. In only two institutions, the Medical College of Virginia and Old Dominion College, does the average square feet per occupant in faculty offices fall much below 100; each of these institutions has a considerable number of part-time faculty members.

Table 20. NUMBER, SIZE, AND OCCUPANCY OF OFFICES FOR FULL-TIME FACULTY MEMBERS IN THE FOUR-YEAR STATE-CONTROLLED INSTITUTIONS OF HIGHER EDUCATION IN VIRGINIA

Name of Institution	Number of Rooms	Total Square Feet	Total Number of Full-time Faculty	Sq. Ft. Per Occupant
College of William and Mary	145	33,040	210	157
Longwood College	81	12,953	83	156
Madison College	87	17,838	116	153
Mary Washington College	76	17,834	133	134
Medical College of Virginia	247	31,408	287	109
Old Dominion College	168	21,302	212	100
Radford College	72	11,897	123	96
Richmond Professional Institute	139	21,452	158	135
University of Virginia	559	96,226	675	142
Virginia Military Institute	83	18,619	127	146
Virginia Polytechnic Institute	414	82,555	769	107
Virginia State College-Petersburg	157	33,009	277	119
Virginia State College-Norfolk	74	17,521	160	109
Total	2,302	415,654	3,330	124

The data of Table 20 suggest that, since there are more faculty members than office rooms, many offices are occupied by more than one faculty member. Table 21 shows the percentage of all full-time faculty members who have a single office, who are housed two in an office, and three or more in an office; also shown is the percentage of full-time faculty members for whom no office space is provided. Data on this point were available for only nine of the 13 institutions.

The ideal situation is to provide an individual office room for each full-time faculty member. Only by such an arrangement can the fullest advantage of an office be obtained. The faculty member needs privacy. He must have many conferences with students, and also with other faculty members, in which the presence of someone at another desk in the room might be embarrassing. He must also have opportunity to pursue his own study and writing, free from annoying interruptions by conferences at a neighboring desk. In the Virginia institutions for which data are presented in Table 21, only Longwood College approaches the ideal. A majority of the nine institutions have less than half their faculty members housed in single offices. The worst situation shown in Table 21 seems to be at the Medical College of Virginia, where 47 per cent of the faculty members have no office space; presumably many of these are part-time faculty members. At Virginia Polytechnic Institute 47 per cent of the faculty members are crowded three or more in an office. Virginia State College at Norfolk and Radford College both have high percentages of

Table 21. DISTRIBUTION OF OFFICES FOR FULL-TIME FACULTY MEMBERS IN EACH FOUR-YEAR STATE-CONTROLLED INSTITUTION, ACCORDING TO NUMBER OF OCCUPANTS IN THE OFFICE

Institution	Per Cent with One in Office	Per Cent with Two in Office	Per Cent with Three or More in Office	Per Cent with No Offices
The College of William and Mary	64	26	10	-
Longwood College	98	1	-	1
Madison College	68	10	17	5
Mary Washington College	37	26	16	21
Medical College of Virginia[a]	67	16	4	13
Old Dominion College[a]	56	23	18	3
Radford College	60	22	18	-
Richmond Professional Institute	82	13	4	1
University of Virginia	83	12	5	-
Virginia Military Institute	59	33	8	-
Virginia Polytechnic Institute	2	51	47	-
Virginia State College-Petersburg	48	37	14	1
Virginia State College-Norfolk	45	27	23	5

[a] Based on full-time faculty only.

their faculty members housed with two or more in an office. With the exception of the Medical College of Virginia, none of the institutions has a high percentage of its faculty members without any office space assigned to them.

Source of Funds for Construction of College Buildings

In Table 22 are summarized data provided by the institutions regarding the source of funds from which non-residential buildings were constructed in each of the thirteen state-controlled institutions. The figures for value reported in Table 22 are "book value," or the initial outlays for the buildings plus amounts spent for additions and improvements. Other figures for "value" of buildings might have been used, such as "present value" or "replacement value;" these figures involve a large amount of guesswork unless based upon a painstaking engineering survey, for which there was not time in the present Study. The figures for "book value" have meaning as indicating the number of dollars the institutions have invested in their non-residential buildings as they now stand. Changes in the value of the dollar or the costs of construction since the buildings were constructed are not taken into account.

Table 22 shows that, for all institutions combined, a little less than three-fourths (73 per cent) of the funds invested in non-residential buildings in the Virginia state-controlled colleges and universities came from state appropriations. Three other sources each provided about 8

Table 22. SOURCE OF FUNDS FOR NON-RESIDENTIAL BUILDINGS (In Thousands)

Institution	State Appropriation		Private Funds		Revenue Bonds		Student Fees		Federal Funds		Local Funds		Total
	Amt.	%	Amt.	%	Amt.	%	Amt.	%	Amt.	%	Amt.	%	
The College of William & Mary	$ 5,960	65	$1,608	18	$ 1,343	15	$ -	-	$ 117	1	$ 81	1	$ 9,109
Longwood College	3,645	89	350	9	-	-	121	3	1	-	-	-	4,117
Madison College	3,023	96	12	-	8	-	-	-	94	3	-	-	3,137
Mary Washington College	3,645	92	-	-	217	5	-	-	93	2	-	-	3,955
Medical College of Virginia	7,603	70	594	5	2,292	21	-	-	-	-	448	4	10,937
Old Dominion College	4,505	92	245	5	-	-	75	2	75	2	-	-	4,900
Radford College	2,458	79	41	1	10	-	-	-	595	19	21	1	3,125
Richmond Professional Inst.	2,201	80	63	2	-	-	306	11	185	7	-	-	2,755
University of Virginia	24,084	65	3,326	9	2,711	7	977	3	4,069	10	2,118	6	37,285
Virginia Military Institute	6,211	85	125	2	-	-	-	-	991	14	-	-	7,327
Virginia Polytechnic Institute	15,215	70	2,545	12	1,929	9	151	1	2,004	9	-	-	21,844
Virginia State College-Petersburg	3,985	62	525	8	900	14	-	-	977	15	-	-	6,387
Virginia State College-Norfolk	5,131	100	-	-	-	-	-	-	-	-	-	-	5,131
Totals	$87,666	73	$9,434	8	$9,410	8	$1,630	1	$9,201	8	$2,668	2	$120,009

per cent of the total: private funds, revenue bonds, and the Federal Government. The percentage of the total investment in buildings provided from state appropriations varies from highs of 96 per cent at Madison College and 100 per cent at Virginia State College-Norfolk, to lows of 65 per cent at The College of William and Mary and the University of Virginia, and 62 per cent at Virginia State College-Petersburg.

CHAPTER III

CONDITION OF EXISTING INSTRUCTIONAL PLANT FACILITIES

Each of the institutions was asked to report the present conditions of physical facilities used for instruction. The condition was reported in three classifications: (1) satisfactory; (2) requires renovation; and (3) should be razed and replaced. A summary of these reports of condition is presented in Table 23.

For the four-year state-controlled institutions as a group, there was reported a total of 394,119 square feet of space which should be razed and replaced. This was 4.5 per cent of the total of non-residential floor area. The institutions reported a total of 1,624,245 square feet of instructional space which requires renovation. This was 18.9 per cent of the total. Inspections during the personal visits of the Consultants generally substantiate these figures.

Table 23 provides useful information regarding the number of square feet and the percentage of the total at each institution in each classification of condition. Of particular interest are the figures for facilities which were reported as "should be razed and replaced." The percentages range from a low of zero per cent at Radford College, Virginia State College at Petersburg, and Longwood College, to a high of 34.9 per cent at Richmond Professional Institute.

Information regarding the dates of construction is also of use in

Table 23. INSTITUTIONAL REPORTS ON PRESENT CONDITION OF NON-RESIDENTIAL FACILITIES, FALL, 1964

Institution	Satisfactory Condition		Requires Major Renovations		Should Be Razed and Replaced		Total Gross Square Feet
	Sq. Ft.	Per Cent of Gross	Sq. Ft.	Per Cent of Gross	Sq. Ft.	Per Cent of Gross	
The College of William and Mary	422, 626	62. 2	192, 694	28. 3	64, 446	9. 5	679, 766
Longwood College	275, 530	92. 0	24, 249	8. 0	-	-	299, 779
Madison College	173, 428	53. 2	140, 985	43. 2	11, 976	3. 6	326, 389
Mary Washington College	225, 133	74. 3	70, 181	22. 1	8, 212	2. 6	303, 526
Medical College of Virginia	504, 082	94. 3	-	-	30, 879	5. 7	534, 961
Old Dominion College	271, 700	83. 4	24, 000	7. 4	29, 724	9. 2	325, 424
Radford College	181, 859	76. 3	56, 150	23. 7	-	-	238, 009
Richmond Professional Institute	112, 658	47. 7	40, 952	17. 4	82, 308	34. 9	235, 918
University of Virginia	1, 911, 873	82. 1	381, 437	16. 3	38, 862	1. 6	2, 332, 172
Virginia Military Institute	479, 889	88. 8	56, 899	10. 5	2, 232	. 7	539, 020
Virginia Polytechnic Institute	1, 221, 278	65. 1	545, 077	29. 1	109, 730	5. 8	1, 876, 085
Virginia State College - Petersburg	480, 198	84. 3	91, 621	16. 1	-	-	571, 819
Virginia State College - Norfolk	314, 601	95. 1	-	-	15, 750	4. 9	330, 351
Total	6, 574, 855	76. 6	1, 624, 245	18. 9	394, 119	4. 5	8, 593, 219

providing a frame of reference for estimates of capital outlay needs. Table 24 summarizes information regarding dates of construction of non-residential buildings in each of the institutions.

It is especially significant to note, from Table 24, that half of the floor area in non-residential buildings in the institutions listed has been constructed since 1950, or in the last fourteen years. One can imagine the reaction of leading citizens of Virginia if they had been told in 1950 that they would have to double the capacity of the instructional space in their state-controlled colleges and universities in the next fourteen years. That this expansion of instructional facilities has been accomplished, and without any noticeable impoverishment of the State and its taxpayers, is a real tribute to the strength of the State's economy, and to the leadership in the institutions of higher education and in the offices of State government. The people of Virginia deserve commendation on the way they have met the challenge of increasing demands for higher education in the years since 1950.

It is fortunate that only 4. 5 per cent of the floor area used for instructional purposes was constructed before 1900. Buildings of that vintage are usually not well adapted to modern programs of instruction without expensive alterations. The University of Virginia has the largest amount of floor area in old buildings of this type; the original buildings of the University date from the Jeffersonian period. The only other institutions that are using any substantial floor area for instructional purposes dating from

Table 24. SQUARE FEET OF FLOOR SPACE IN NON-RESIDENTIAL BUILDINGS, CLASSIFIED BY DATE OF CONSTRUCTION, FOUR-YEAR STATE-CONTROLLED COLLEGES AND UNIVERSITIES OF VIRGINIA

	Prior to 1900	1900-1924	1925-1950	Since 1950	Total Gross Sq. Ft.
The College of William and Mary	47,178	89,516	185,266	357,806	679,766
Longwood College	65,462	96,878	91,005	46,434	299,779
Madison College	-	67,848	126,787	131,754	326,389
Mary Washington College	-	47,837	104,990	150,699	303,526
Medical College of Virginia	48,015	74,661	29,832	382,453	534,961
Old Dominion College	-	24,000	56,124	245,388	325,512
Radford College	-	49,650	76,710	111,649	238,009
Richmond Professional Institute	22,650	66,087	-	147,181	235,918
University of Virginia	169,787	389,846	703,014	1,069,525	2,332,172
Virginia Military Institute	16,007	101,187	342,905	78,921	539,020
Virginia Polytechnic Institute	13,005	173,450	715,456	974,174	1,876,085
Virginia State College - Petersburg	-	34,876	258,862	278,081	571,819
Virginia State College-Norfolk	1,550	-	-	328,801	330,351
Total All Institutions Square Feet	383,654	1,215,836	2,690,951	4,302,866	8,593,307
Per Cent of Total Sq. Ft. All Institutions	4.5	14.1	31.3	50.1	100.0

the Nineteenth Century are Longwood College, the Medical College of Virginia, and The College of William and Mary. A total of only 18.6 per cent of the instructional floor area is more than 40 years old. Two institutions, the University of Virginia and Virginia Polytechnic Institute, account for 47.5 per cent of all the new instructional floor area put into service since 1950. These same two institutions have 48.9 per cent of the total non-residential floor area in the thirteen four-year state-controlled institutions of higher education in Virginia. Both these institutions have extensive research programs, so comparisons on the basis of student enrollments are not valid.

Finally, in Table 25 are shown data on the reported suitability for present purpose of non-residential buildings. The judgments on the suitability of the facilities was made in reports submitted by each institution. The Consultants verified the situation at each institution at the time of their visit; in general, it was the Consultants' opinion that the appraisals by institutional officials were reasonable and fair.

Table 25 shows that 6 per cent of the non-residential floor area was judged to be so unsuitable for its present purpose that it should be replaced. Three institutions, Richmond Professional Institute, Old Dominion College, and Radford College, had particularly high percentages of their instructional floor area classified as "should be replaced." At the first mentioned of these institutions, Richmond Professional Institute, slightly more than one-third of all instructional space was in the category

Table 25. CLASSIFICATION OF FLOOR AREAS OF NON-RESIDENTIAL FACILITIES, ACCORDING TO THEIR SUITABILITY FOR PRESENT PURPOSE, FOR EACH FOUR-YEAR STATE-CONTROLLED INSTITUTION OF HIGHER EDUCATION IN VIRGINIA

Institution	Adequate		Fair		Poor		Should Be Replaced		Totals (Gross)
	Sq. Ft.	% of Gross	Sq. Ft.	% of Gross	Sq. Ft.	% of Gross	Sq. Ft.	% of Gross	
The College of William and Mary	291, 298	43	196, 634	29	176, 976	26	14, 858	2	679, 766
Longwood College	275, 530	95	-	-	24, 249	5	-	-	299, 779
Madison College	142, 451	44	10, 200	3	161, 762	49	11, 976	4	326, 389
Mary Washington College	60, 542	20	195, 147	64	47, 837	16	-	-	303, 526
Medical College of Virginia	341, 467	64	132, 783	25	29, 832	5	30, 879	6	534, 961
Old Dominion College	172, 588	53	54, 200	17	24, 000	7	74, 724	23	325, 512
Radford College	104, 065	44	77, 794	33	-	-	56, 150	23	238, 009
Richmond Professional Institute	112, 658	48	24, 836	11	16, 116	7	82, 308	34	235, 918
University of Virginia	406, 573	17	874, 596	37	965, 430	41	85, 573	4	2, 332, 172
Virginia Military Institute	179, 228	33	300, 661	56	33, 358	6	25, 773	5	539, 020
Virginia Polytechnic Institute	1, 206, 124	64	15, 490	1	544, 741	29	109, 730	6	1, 876, 085
Virginia State College-Petersburg	375, 379	66	130, 809	23	61, 330	10	4, 301	1	571, 819
Virginia State College-Norfolk	56, 154	17	258, 447	78	-	-	15, 750	5	330, 351
Totals	3, 724, 057	43	2, 271, 597	27	2, 085, 631	24	512, 022	6	8, 593, 307

of "should be replaced;" a casual visitor to the institution would doubtless conclude quickly that the percentage is an understatement. If the two lowest categories in Table 25 are combined, about 30 per cent of the nonresidential floor area in all institutions combined is classified as poor or worse.

At the other end of the scale, 95 per cent of the instructional floor area at Longwood College is classified as adequate for its present purpose. At each of three other institutions, Virginia State College-Petersburg, Medical College of Virginia, and Virginia Polytechnic Institute, about two-thirds of the floor area for instructional purposes is listed in the "adequate" column. But the University of Virginia and Virginia State College-Norfolk each report only 17 per cent of this kind of floor area as adequate for its present purpose. It is rather surprising to recall from the preceding table, Table 25, that practically all the floor area for instructional purposes at Virginia State College-Norfolk has been constructed since 1950; and yet Table 25 shows that only 17 per cent of this recently constructed floor area is considered adequate for its present purposes (though most of the rest is classified as "fair").

CHAPTER IV

OBSERVATIONS FROM VISITS TO EACH OF THE INSTITUTIONS

An important part of this Report of non-residential facilities is the determination of the adequacy and condition of the existing plant. The data submitted by the individual institutions have been summarized above. These data were supplemented by personal visits to each of the 13 campuses in order to ascertain visually the characteristics of the reported conditions. The following brief reports attempt only to summarize the rather specific notes taken regarding the buildings reported in very poor condition. The comments refer to conditions observed by the consultants during the early summer of 1965. In the months since that time the institutions have made progress in remedying the conditions about which comments are made.

The College of William and Mary

The college is one of the oldest institutions of higher learning in the country. It is located on a beautiful campus with ample acreage to accommodate present plans for future development. From many points of view, including available facilities and the prestige of the institution, it would seem that The College of William and Mary should continue to be developed as one of the outstanding educational centers of the State.

Essentially, no new instructional buildings were built between 1935 and 1964. Some of the instructional program, including laboratory work, is carried on in a number of old quonsets located near the edge of the campus. These should be replaced with adequate facilities. New construction, which is to be completed, will mean that other units of the College will be able to move to better quarters.

In addition to the old quonsets, the College uses several temporary facilities for its instructional program. The most conspicuous is the old Methodist Church, which is used by the Mathematics Department. It is urgent that suitable space be provided to replace this inadequate facility.

Roger Hall is a sound building and remodeling it would provide good space for certain departments now housed in it. The Marshall-Wythe building now houses some of the administrative offices and classrooms. The plan is that this substantial building would eventually be remodeled so that additional administrative offices and faculty could be accommodated in it. Blow Gymnasium is in good condition even though it is old. Eventually, this should be remodeled. Washington Hall is a good building structurally and remodeling here would provide additional classroom facilities.

The present Fine Arts building will be vacated in the near future. This building should definitely be demolished. The Wren Building is an extremely impressive building, with tradition and historical character. It is well kept. It is used for instructional purposes, but in the opinion of the Consultants, it should be vacated eventually and retained primarily as a historical building.

In the case of The College of William and Mary, it might be suggested that additional, intensive long-range campus planning is called for. This may be said of a number of other institutions in the State of Virginia.

Longwood College

Longwood College expects a growth in enrollment from 1,439 (September, 1964) to 2,400 students in the fall of 1972. In order to accommodate these students, Longwood College proposes:

1. To build five new dormitories at a total capacity of 1,000.
2. To build three major instructional buildings: viz, a classroom building for music, art, and drama; a science addition; and a demonstration school.
3. To build a student activities building and improve some physical education facilities.
4. To renovate existing residential space for administrative offices.
5. To acquire additional land and complete various site improvements.
6. To extend utility lines and improve existing utilities.
7. To convert existing student activity space to residential use.

On the basis of the evidence available, it is recommended that Longwood College:

1. Proceed with its residence hall building program.
2. Accelerate its land acquisition program.
3. Proceed with its extension and improvement of utility lines.
4. Re-evaluate its proposal to convert student activity space into dormitory rooms.

5. Re-evaluate its proposal to convert the second and third floors of Ruffner Hall to office space.
6. Make a detailed analysis of the need for additional classroom-laboratory facilities, in which projected use of existing facilities is examined thoroughly.

Concerning the renovation of the student activities building, in which it is proposed that dormitory rooms be created, the Consultants would make the following comments: The conversion of this space to dormitory rooms will be expensive in terms of the additional residential capacity realized. The rooms will be less than desirable as residential facilities. Unless the press for residence hall space is extremely critical, the Consultants would recommend against this conversion of student activity building space to dormitory space.

Concerning the conversion of the top two floors of Ruffner Hall to administrative office space, the Consultants would make these comments: Although specific data on square footage was not available, it appears that this renovation would cost approximately $14 per square foot. The building is in rather poor condition, the floors sag badly, the plaster is cracked and falling off in several places. It is very doubtful that this proposed conversion represents a wise expenditure of funds, unless the historical importance of the structure outweighs the prudent use of money. It would undoubtedly be less expensive in the long run to raze this building and complete a new administration building in its stead.

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Madison College

The college enrolls approximately 2,000 students and its plans call for expansion to approximately 4,000 by 1972. The campus has some critical problems relative to faculty office space. Careful attention should be given to this matter as funds are provided for physical plant on this campus.

Maury Hall was reported as "to be razed and replaced." It is our opinion that this building is substantial in its structure and furthermore, it fits the architecture in the area of the campus in which it is located. It is in need of remodeling which we would recommend. There remains the question of economic feasibility. One way to resolve the dilemma as to whether it should be demolished or renovated is to obtain a specific engineering-architectural estimate of the cost of both approaches.[1]

Wilson Hall is a good building for remodeling. It will provide additional classrooms which are definitely needed. Alumnae Building is a building in reasonably good condition and suitable for remodeling. Keezell Hall is a building which now houses the gymnasium and pool. It is in reasonably sound structural condition and when remodeled should yield approximately sixteen classrooms.

The college, in terms of what there is available, is in very urgent need of a good student center. A student center is tentatively planned for location where the President's Home stands. The colleges of the State might be urged to look at the whole matter of method of financing the student centers and similar facilities. Dependence on State funds for some of these types of buildings can be a very limiting factor.

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[1] Since the visit of the Consultants, an engineering and architectural survey of Maury Hall has been made by the staff of the State Budget Office. The conclusion is that it would not be economically feasible to remodel this building.

The library, although a very good building for present enrollments, will have to be expanded in the very near future.

One other comment should be made: The maintenance of the building on this campus does not appear to be as good as it might. Another observation is that the Board and the President have had the good foresight to purchase additional lands so that the campus area is now sufficiently large for expansion in the future.

Mary Washington College

The college is a four-year branch of the University of Virginia. The President underscored the point that he considers Mary Washington College to have a unique role as a "liberal arts college for women" in the State of Virginia.

The library at the college is an excellent facility. There are instances of inadequate faculty offices but, in general, this can be properly taken care of with sufficient remodeling of some of the present buildings.

George Washington Hall houses the administrative staff on the first two floors, with the other floors devoted to classrooms and faculty offices. Faculty offices in this building appeared to be adequate. The classrooms on the third floor of this building are now being refurbished and should be entirely adequate. In Lee Hall, there are a number of faculty offices which are barely satisfactory. Monroe Hall is one of the oldest buildings on the campus. There are plans to do some interior renovations, some of which are already underway. The building is in need of some major renovation including a new roof. Basically, it appears to be a sound structure. Chandler Hall is a building which is basically sound structurally but needs renovation, which is underway. The renovation now underway suggests that the College ought to give a little more specific attention to utilizing proper professional assistance in its renovation plans.

Medical College of Virginia

The instructional program of the Medical College of Virginia is being moved in the direction of the "unit laboratory" concept. In order to move its program along the lines of this concept, the Medical College will have to build such laboratory units for its program. New capital outlay funds will be needed in order to provide for this concept and the general growth of the institution.

Old Dominion College

The College is growing rapidly, as it provides instructional programs in response to the enrollment pressures of the area. The College has just begun to develop a careful master plan for future development. Essentially, the enrollment growth of this institution will have to be provided for through new construction and some remodeling in one or two instances.

In general, the land procurement and new buildings are moving along satisfactorily. The College faces some critical problems in the area of faculty office space. Similar problems are faced in providing offices for the administration, including the Business Office.

The Old Academic Building is an old elementary school, the first building to house the extension programs which were begun here. The Consultants would not recommend that this building be remodeled for actual classroom and laboratory use. It is possible that, with modest financing, the building could be converted into a facility housing faculty research offices and laboratories funded by outside grants. The Social Studies Building should be demolished as soon as possible.

Radford College

Radford College anticipates an enrollment increase from 2,400 to 4,300 students by 1972. In order to meet this increase it proposes:

1. To complete three residence halls already under construction.
2. To add three new residence halls.
3. To build a student activities building.
4. To add a steam generating unit and extend present utilities.
5. To add nine instructional buildings, two of which represent additions to existing buildings.
6. To raze three buildings to make way for new buildings.

The residence halls are obviously needed to accommodate the increased enrollment growth, although the economics of somewhat larger units might bear investigation.

A reasonable and well-developed campus plan for Radford College has been prepared. While it is recognized that enrollment increases may surpass expectations, the amount of instructional space proposed between the present time and 1972 requires careful scrutiny. Here, again, the economy of somewhat larger units should be studied.

The proposal to raze Founders Hall, Lucas Hall, and Fairfax is supported.

The reservations in the paragraphs above notwithstanding, Radford College appears willing to face its responsibility for increased enrollments and deserves maximum financial support for its proposed building program.

A critical need for faculty offices exists, and perhaps some thought should be given to an early solution for this problem in one of the general academic buildings proposed.

Richmond Professional Institute

The Institute has in the past had rather specialized professional programs. In recent years it has added more general college curriculums. It now enrolls some 6, 500 students, many of whom are part-time. If the institution were provided with adequate land and facilities, it could enroll as many as 17, 000 students by 1975. This focuses on the major issue in the Richmond area as to what institution (and where it should be located) should provide for the large enrollment growth here.

The Administration Building contains mostly classrooms and certain administrative offices. The building is a "hodgepodge" of many different types of hallways and varying size rooms. It is badly in need of renovation in all areas. The faculty offices are in unsatisfactory condition.

The Student Center is being suggested as a building to remodel. The Consultants do not recommend that this building be remodeled for a student center. It is an old residence and will really be inadequate as a substantial student center. There are miscellaneous other old residences which have been purchased and which are at best a makeshift situation. These should be demolished in the very near future and replaced with adequate classroom and laboratory facilities.

With the rapid growth and pressures of additional enrollment, it is evident that Richmond Professional Institute will have to develop a basic, long-term plan. Its present location, restricted very tightly to a small area, suggests that the whole matter of location of this institution and what may be projected for it be reviewed before too much additional money is invested in new buildings and remodeling of old residences.

The University of Virginia

The University of Virginia now enrolls approximately 6,000 students and is projecting an enrollment of 10,000 by 1972. The University offers graduate and professional programs in a number of different areas. Major research efforts are in the field of medicine, engineering, physics, economics, and education.

Although research is being carried on and facilities are being built for it, there has been inadequate attention given to the long-term planning and financial provision for research space. Faculty office space appears to be generally satisfactory, but was reported critical in the College of Arts and Sciences. Plans in future buildings call for providing sufficient office space for faculty.

In the total facilities planning for this institution, it should be borne in mind that there is considerable historical tradition that exists with respect to the architecture and the buildings on the campus. Thus, the Rotunda and its wings are buildings which should be considered for renovation and retention. The Rotunda and the wings are in good structural condition and, if sufficient funds can be made available, it would be desirable to remodel this area and continue it as a historical item on the campus as well as to house certain administrative units.

A number of the buildings were reported as "to be razed and replaced." Also, some buildings were indicated as "to be remodeled."

Memorial Gymnasium is now being replaced by a new field house. The present gymnasium, after remodeling, should make a very fine intramural activities building.

Brooks Museum is a building which is in relatively bad shape internally and externally. It would appear that it is a fire hazard and, in the opinion of the Consultants, this building should be demolished rather than remodeled. From the aesthetic point of view it detracts from the future total view that will be available if the Rotunda and the wings are remodeled. Cobb Chemical Hall is a building which is substantial enough for remodeling purposes.

Peabody and Peabody Annex are buildings which, in the long-term plan of the institution, are to be demolished and replaced by new buildings. In the opinion of the Consultants, these are relatively good buildings and the matter of their being demolished and replaced, although it fits very well into the University Campus Plan, should be postponed for some time.

Fairweather Hall is a building which is structurally sound for some remodeling.

The University of Virginia has in its possession a well-developed long-term plan prepared by an architectural firm. In general, this seems to be a sound campus plan and one which, with certain modifications suggested above and suggested in the matter of utilization levels, should be followed.

Virginia Military Institute

Virginia Military Institute does not anticipate an enrollment increase within the foreseeable future. Several projects are proposed, however to enhance existing facilities and to support the existing academic program. More specifically, Virginia Military Institute proposes:

1. To build three new instructional buildings: viz, a Military and Air Science Building, an Auditorium, and a Research and Graduate Studies Building.

2. To renovate the student barracks and build faculty housing units.
3. To rearrange various activities in more reasonable locations thereby requiring various renovation projects.
4. To acquire additional land and make various site improvements.

Within the assumption of an enrollment ceiling of 1,200 students, the proposed building, renovation, land acquisition, and site improvement program of Virginia Military Institute appears reasonable and well planned. It is recommended, however, that Virginia Military Institute evaluate its ability to accommodate additional students by:

1. Increasing its student barracks capacity.
2. Changing its block system of scheduling.
3. Proceeding with its well-planned proposal to rearrange various activities in more reasonable locations.
4. Re-evaluate its new instructional facility capacities in light of possible enrollment increases.

Although on the face of it the proposed shifts and new buildings for Virginia Military Institute appear to make a good deal of sense, there are two areas of concern which are interrelated. First, it seems reasonable that the assumption that Virginia Military Institute not grow beyond 1,200 students ought to be re-evaluated. It is true that there are some limiting factors, such as the barracks, to increased growth; however, some of the facilities, such as the library, do appear to have the necessary capacity for an enrollment increase. Historically, Virginia Military Institute has scheduled classroom activity from 8 a. m. to 1 p. m., the lunch hour from 1 p. m. to 2 p. m., and laboratory activity from 2 p. m. to 4 p. m. Re-evaluation of this type of block scheduling might indicate that sufficient classroom and laboratory space exists for a significant enrollment increase.

One renovation project is worthy of special note and of a specific recommendation. Jackson Memorial Hall, which is the cadet chapel and serves at the present time as the auditorium, has been scheduled for a major renovation project. There is no doubt that, if this building is to be preserved, a major renovation job needs to be undertaken.

Virginia Polytechnic Institute

Virginia Polytechnic Institute anticipates that its enrollment will double within the next ten years. In order to meet this increase it proposes:

1. To complete three residence halls for 2,800 students as well as an additional dining hall.
2. To renovate Hillcrest and Campbell Dormitories for women.
3. To add ten new instructional buildings.
4. To undertake ten major renovation projects, including an addition to Burruss for administrative offices.

5. To complete several projects involving site development, utility extensions, and ground improvements. New buildings and grounds service buildings are also required.
6. To purchase land required for agricultural research and campus expansion.
7. To raze 14 existing buildings, 11 of which are wood structures of minimal value.

On the basis of the evidence available, it is recommended that Virginia Polytechnic Institute:

1. Proceed with its residence hall program.
2. Be granted maximum support to carry forward its capital improvement program, including land acquisition, site clearance, and renovation of existing structures.

Virginia Polytechnic Institute, as noted above, proposes to raze 14 existing structures. Eight of these are wooden buildings of little value. Their removal will provide prime building sites for one or more academic buildings related to biology, geology, and education. Three of these are also wooden structures which formerly served the Farm Program. Their removal will permit proper development of the golf course.

Three stone and masonry structures are also to be razed:

1. McBryde Hall is currently used as a laboratory building for automotive engineering, mechanical engineering, ceramic

engineering, and metallurgical engineering. Obvious structural deficiencies are apparent in the building. Both engineers and the Virginia Art Commission were reported to have recommended that McBryde Hall be razed.

2. Military is a small building which requires extensive maintenance. It also stands in the way of reasonable campus development.
3. The Old Laundry is structurally unsound and also needs to be removed to provide for future campus development.

The Consultants were impressed by the soundness of the capital improvement planning at Virginia Polytechnic Institute. It is quite evident that the buildings proposed to be razed should be demolished, either because of their poor structural condition or because of their heavy maintenance costs, or both. The proposed building program, the location of these buildings, and the renovation of vacated space all seem to be well planned. It is recommended that this program be supported with appropriate capital outlay funds.

Virginia State College - Petersburg

The institution appears to have a very good site and master plan, all evidently reflecting the enthusiasm and involvement of the President in his work on behalf of the college.

Simms Hall is structurally sound and it is reasonable to anticipate that it will be remodeled and used in the future. The Office Annex is the former residence of the President. It now provides numerous faculty members with offices. The facilities are really not very good and, if it is to be used in the future, substantial moneys would be required to remodel it properly. Vawter Hall, in our opinion, is not a building worth putting remodeling funds into. Daniel Hall is a good building and should be remodeled and continued for use as soon as the new physical education building is completed. Davis Hall is the former training school building. It is now used by several departments including Psychology. The building is not the very best, but it is usable for a time and additional funds put into it will make it more attractive as an interim facility.

Virginia State College - Norfolk

The College is located in a heavily populated area. It enrolls approximately 5,000 students with prospects of very rapid growth in response to local enrollment pressures. There is a critical need for an adequate student center. Initial plans have been drawn and funds have already been appropriated for this.

The Trade Annex is a building which is substantial enough to warrant the major renovation which it needs. Actually, though, no major investment should be made here, in view of the fact that this building is not large enough and it should be replaced with a much larger building in a long-term plan of the College. The Home Economics House is an old residence; it is in very poor condition and should be demolished at the earliest possible moment. The faculty office situation appears to be quite critical in some instances. As plans for new buildings are approved and funds are made available, it should be ascertained that provisions of office space are contained therein.

CHAPTER V

UTILIZATION OF INSTRUCTIONAL FACILITIES

Several factors must be given consideration as the results of space utilization are considered in relationship to possible dollar savings through the improvement of such utilization levels:

1. Classroom and laboratory space, the usual object of such utilization studies, comprises only a portion of the total institutional facilities required for students and faculty on a given campus. Space actually used and measured in these studies probably comprises about 40 to 50 per cent of the grand total, if the instructional supporting space is included. Thus, a percentage increase in the utilization level may not reflect itself in as large a dollar saving as might be expected.
2. Improvement in the utilization of instructional space is not an end in itself. The objective of better utilization is either (1) to accommodate increases in enrollment without corresponding increases in classroom and laboratory space; or (2) if enrollment is to remain approximately static, to enable the release for other needed purposes (such as faculty offices) of floor area now inefficiently used as classrooms and laboratories.
3. The finding that improved levels of utilization are possible has been rather typical in most such analyses. Proper attention

to the improvement of the use of such space has implications for substantial dollar savings in future capital outlay programs.

As part of this Report, the results of the study of space utilization made by the staff of the State Council of Higher Education for the fall semester of 1964 have been used as a source. The data of that study provide information regarding general classrooms, seminar rooms, teaching laboratories, and auditoriums. Data for the fall of 1962 from a similar study made by the Council's staff are also available.

General Utilization

In reporting levels of utilization, several different measures are available. One of these is room-period utilization; it refers to the number of periods of use per room per week. A "period" is normally 50 minutes.

The number of hourly class meetings in a room during a typical week represents the room-period utilization, regardless of the size of classes meeting in the room. For purposes of comparison, the number of room periods of use maybe translated into the percentage of possible room periods of use for a week consisting of some set number of hours. For the purpose of this Study, the base selected was a 44-hour week.

Another measure of utilization is the average number of periods of use per week for a student station.[1] This measure may also be expressed as a percentage of the possible student-station-period of use in an average week.

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[1] A student station is a seat in a classroom, or at a laboratory table, or similar accommodation for a student during an instructional period.

Data on these two measures, for the 13 institutions as a group, are given in Table 26. The summary data are given for the fall of 1964 and for the fall of 1962. In addition, comparative data are presented for nine state-controlled colleges and universities in Michigan for 1961 and for six state-controlled colleges and universities in Ohio for 1962.

The data of the table indicate that there has been an increase in the total number of room periods of occupancy and student-station-periods of occupancy between 1962 and 1964. This would be expected in view of the enrollment increases in that two-year period.

More importantly, there have been increases, though relatively small, in the utilization levels. Thus, the average weekly room-periods of use increased from 18. 9 to 19. 6 per week in the two-year period; the average weekly student-station-period use increased from 11. 0 to 12. 1.

It should be noted that, even with these increases, the Virginia institutions as a group are well below the averages shown for the Ohio and Michigan institutions. This is all the more important when note is taken of the fact that the data for Virginia are for 1964 while the data for the other two states are for 1961 and 1962. More recent studies in these states indicate that they have also improved in the intervening years.

The most likely conclusion to be drawn from this table is that, to the extent to which the Virginia institutions are similar to those in Ohio and

Table 26. SUMMARY OF THE UTILIZATION OF INSTRUCTIONAL SPACE IN CLASSROOMS AND LABORATORIES (ALL OF THE STATE INSTITUTIONS)

Item	Fall 1962 Total For All Rooms	Fall 1964 Total For All Rooms	Nine Mich. Institutions (1961)	Six Ohio Institutions (1962)
Number of Rooms	1,322	1,395	2,088	1,389
Total Room Period Used	24,788	27,389	108,757	32,568
Ave. No. of Room Periods of Use Per Room Per Week	18.9	19.6	26.0	23.4
Per Cent of Possible Room Periods of Use in a 44-hour Week	42.7	44.5	59.1	53.2
Number of Student Stations	51,985	54,944	92,585	67,563
Student Station Periods of Occupancy	567,858	665,291	2,653,825	997,164
Per Cent of Student Station Use When Room is in Use	60.0	(est.) 60.0	56.3	58.5
Ave. Stud. Sta. Period of Occupancy Per Stud. Sta. Per Week	11.0	12.1	14.2	14.8
Per Cent of Possible Stud. Sta. Period Use in a 44-hour Week	25.0	27.4	32.4	33.6
Ave. Stud. Sta. Periods of Occupancy Per Student Enrolled	-	14.7	14.1	14.9

Michigan as groups, there is room for considerable increase in the levels of use of instructional facilities in Virginia colleges and universities. In round numbers, it might be suggested that an increase of 20-25 per cent does not seem an unrealistic goal to set.

Tables 27 through 39 present data on selected utilization factors for each of the 13 institutions in Virginia. Table 40 shows the average weekly room-period use for each of the 13 institutions and for each of four types of instructional rooms. Table 41 shows in a similar manner the data for average weekly student-station-period use.

Table 27. UTILIZATION DATA FOR THE COLLEGE OF WILLIAM AND MARY, FALL 1964

	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Ave. No. of Periods of Use Per Room Per Week	25.8	18.3	14.8	18.6	21.3
Ave. No. of Periods of Student Stations Use Per Week	15.0	13.5	11.2	7.8	12.0
Percentage of Student Station Use When Room Was in Use	56.5	72.0	76.3	39.6	54.7
Ave. No. of Student Stations Per Room	37.0	17.5	26.7	185.3	43.4

Table 28. UTILIZATION DATA FOR LONGWOOD COLLEGE, FALL 1964

	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Ave. No. of Periods of Use Per Room Per Week	15.5	9.8	10.6	-	13.5
Ave. No. of Periods of Student Stations Use Per Week	10.2	8.8	7.1	-	9.4
Percentage of Student Station Use When Room Was in Use	66.3	92.4	65.7	-	74.8
Ave. No. of Student Stations Per Room	35.4	22.4	23.5	-	30.6

Table 29. UTILIZATION DATA FOR MADISON COLLEGE, FALL 1964

	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Ave. No. of Periods of Use Per Room Per Week	25.3	-	17.8	22.8	21.6
Ave. No. of Periods of Student Stations Use Per Week	16.4	-	13.5	7.4	14.3
Percentage of Student Station Use When Room Was in Use	64.7	-	63.6	34.0	60.5
Ave. No. of Student Stations Per Room	34.2	-	17.9	135.5	29.3

Table 30. UTILIZATION DATA FOR MARY WASHINGTON COLLEGE, FALL 1964

	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Ave. No. of Periods of Use Per Room Per Week	18.5	12.5	8.9	-	14.7
Ave. No. of Periods of Student Stations Use Per Week	10.9	9.0	5.0	-	9.3
Percentage of Student Station Use When Room Was in Use	59.0	63.8	51.4	-	58.0
Ave. No. of Student Stations Per Room	38.6	22.3	24.2	-	32.4

Table 31. UTILIZATION DATA FOR THE MEDICAL COLLEGE OF VIRGINIA, FALL 1964

	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Ave. No. of Periods of Use Per Room Per Week	15.8	6.0	14.7	16.0	13.9
Ave. No. of Periods of Student Stations Use Per Week	9.9	2.5	13.2	5.6	10.3
Percentage of Student Station Use When Room Was in Use	56.9	39.0	74.6	33.8	60.8
Ave. No. of Student Stations Per Room	81.1	19.9	65.5	174.7	70.8

Table 32. UTILIZATION DATA FOR OLD DOMINION COLLEGE, FALL 1964[a]

	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Ave. No. of Periods of Use Per Room Per Week	31.9	13.5	17.6	25.7	25.8
Ave. No. of Periods of Student Stations Use Per Week	21.8	12.2	13.8	10.4	18.3
Percentage of Student Station Use When Room Was in Use	68.1	79.1	73.6	37.8	66.4
Ave. No. of Student Stations Per Room	38.6	19.0	26.7	106.7	35.7

[a] The vocational-technical instruction rooms have been excluded from this study.

Table 33. UTILIZATION DATA FOR RADFORD COLLEGE, FALL 1964

	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Ave. No. of Periods of Use Per Room Per Week	31.6	-	19.2	-	27.9
Ave. No. of Periods of Student Stations Use Per Week	22.9	-	14.4	-	20.9
Percentage of Student Station Use When Room Was in Use	71.2	-	76.2	-	71.9
Ave. No. of Student Stations Per Room	34.1	-	24.2	-	31.1

Table 34. UTILIZATION DATA FOR RICHMOND PROFESSIONAL INSTITUTE, FALL 1964

	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Ave. No. of Periods of Use Per Room Per Week	29.3	28.7	25.5	24.8	27.2
Ave. No. of Periods of Student Stations Use Per Week	17.7	18.3	18.0	6.7	17.2
Percentage of Student Station Use When Room Was in Use	55.4	64.4	64.4	23.7	57.0
Ave. No. of Student Stations Per Room	44.3	30.0	24.6	122.5	34.9

Table 35. UTILIZATION DATA FOR THE UNIVERSITY OF VIRGINIA, FALL 1964

	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Ave. No. of Periods of Use Per Room Per Week	19.9	14.8	12.3	12.3	17.0
Ave. No. of Periods of Student Stations Use Per Week	10.7	7.7	8.8	4.4	8.8
Percentage of Student Station Use When Room Was in Use	53.2	45.3	64.2	44.2	52.7
Ave. No. of Student Stations Per Room	53.5	20.6	38.1	266.8	55.7

Table 34. UTILIZATION DATA FOR RICHMOND PROFESSIONAL INSTITUTE, FALL 1964

	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Ave. No. of Periods of Use Per Room Per Week	29. 3	28. 7	25. 5	24. 8	27. 2
Ave. No. of Periods of Student Stations Use Per Week	17. 7	18. 3	18. 0	6. 7	17. 2
Percentage of Student Station Use When Room Was in Use	55. 4	64. 4	64. 4	23. 7	57. 0
Ave. No. of Student Stations Per Room	44. 3	30. 0	24. 6	122. 5	34. 9

Table 35. UTILIZATION DATA FOR THE UNIVERSITY OF VIRGINIA, FALL 1964

	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Ave. No. of Periods of Use Per Room Per Week	19.9	14.8	12.3	12.3	17.0
Ave. No. of Periods of Student Stations Use Per Week	10.7	7.7	8.8	4.4	8.8
Percentage of Student Station Use When Room Was in Use	53.2	45.3	64.2	44.2	52.7
Ave. No. of Student Stations Per Room	53.5	20.6	38.1	266.8	55.7

Table 36. UTILIZATION DATA FOR VIRGINIA MILITARY INSTITUTE, FALL 1964

	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Ave. No. of Periods of Use Per Room Per Week	12.8	-	6.7	7.0	11.1
Ave. No. of Periods of Student Stations Use Per Week	8.0	-	4.4	1.8	6.1
Percentage of Student Station Use When Room Was in Use	65.3	-	58.4	24.4	59.8
Ave. No. of Student Stations Per Room	30.2	-	40.4	197.3	37.3

Table 37. UTILIZATION DATA FOR VIRGINIA POLYTECHNIC INSTITUTE, FALL 1964

	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Ave. No. of Periods of Use Per Room Per Week	20.4	8.3	19.8	26.2	20.1
Ave. No. of Periods of Student Stations Use Per Week	13.1	7.9	12.9	13.9	13.1
Percentage of Student Station Use When Room Was in Use	63.9	103.9	72.5	52.9	64.6
Ave. No. of Student Stations Per Room	42.0	15.7	24.7	168.2	37.5

Table 38. UTILIZATION DATA FOR VIRGINIA STATE COLLEGE AT PETERSBURG, FALL 1964

	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Ave. No. of Periods of Use Per Room Per Week	19.8	13.3	15.8	28.8	17.6
Ave. No. of Periods of Student Stations Use Per Week	11.1	7.8	9.8	7.9	10.2
Percentage of Student Station Use When Room Was in Use	54.4	55.9	57.9	28.9	51.0
Ave. No. of Student Stations Per Room	37.1	12.0	18.9	176.0	29.1

Table 39. UTILIZATION DATA FOR VIRGINIA STATE COLLEGE AT NORFOLK, FALL 1964[a]

	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Ave. No. of Periods of Use Per Room Per Week	30.9	30.0	25.8	39.0	29.3
Ave. No. of Periods of Student Stations Use Per Week	24.2	23.0	17.7	20.1	21.7
Percentage of Student Station Use When Room Was in Use	76.8	76.8	67.8	51.3	70.2
Ave. No. of Student Stations Per Room	32.9	28.0	26.3	142.5	33.9

[a] The vocational-technical instruction rooms have been excluded from this study.

Table 40. AVERAGE NUMBER OF ROOM-PERIODS OF USE PER WEEK FOR EACH KIND OF INSTRUCTIONAL ROOM IN EACH OF THE FOUR-YEAR STATE-CONTROLLED INSTITUTIONS OF HIGHER EDUCATION IN VIRGINIA, FALL 1964, AND ALSO FOR INDIANA UNIVERSITY

Institution	General Classrooms	Seminar Rooms	Laboratories	Auditoriums	Total
Virginia Military Institute	12.8	-	6.7	7.0	11.1
Longwood College	15.5	9.8	10.6	-	13.5
Medical College of Virginia	15.8	6.0	14.7	16.0	13.9
Mary Washington College	18.5	12.5	8.9	-	13.9
University of Virginia	19.9	14.8	12.3	12.3	17.0
Virginia State College at Petersburg	19.8	13.3	15.8	28.8	17.6
Virginia Polytechnic Institute	20.4	8.3	19.8	26.2	20.1
The College of William & Mary	25.8	18.3	14.8	18.6	21.3
Madison College	25.3	-	17.8	22.8	21.6
Old Dominion College	31.9	13.5	17.6	25.7	25.8
Richmond Professional Institute	29.3	28.7	25.5	24.8	27.2
Radford College	31.6	-	19.2	-	27.9
Virginia State College at Norfolk	30.9	30.0	25.8	39.0	29.3
Norms based on 90 degree-granting publicly controlled institutions[a]					
Median	20.2	-	15.8	-	-
80th Percentile	25.9	-	19.0	-	-
Indiana University	34.3	-	18.5	-	-

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[a] James I. Doi and Keith L. Scott, Normative Data on the Utilization of Instructional Space in Colleges and Universities. Association of Collegiate Registrars, July 1960.

Table 41. AVERAGE NUMBER OF STUDENT-STATION-PERIODS OF USE PER WEEK FOR EACH KIND OF INSTRUCTIONAL ROOM IN EACH OF THE FOUR-YEAR STATE-CONTROLLED INSTITUTIONS OF HIGHER EDUCATION IN VIRGINIA, FALL 1964

Institution	General Classrooms	Seminar Rooms	Teaching Laboratories	Auditoriums	Total
Virginia Military Institute	8.0	-	4.4	1.8	6.1
University of Virginia	10.7	7.7	8.8	4.4	8.8
Mary Washington College	10.9	9.0	5.0	-	9.3
Longwood College	10.2	8.8	7.1	-	9.4
Virginia State College at Petersburg	11.1	7.8	9.8	7.9	10.2
Medical College of Virginia	9.9	2.5	13.2	5.6	10.3
The College of William & Mary	15.0	13.5	11.2	7.8	12.0
Virginia Polytechnic Institute	13.1	7.9	12.9	13.9	13.1
Madison College	16.4	-	13.5	7.4	14.3
Richmond Professional Institute	17.7	18.3	18.0	6.7	17.2
Old Dominion College	21.8	12.2	13.8	10.4	18.3
Radford College	22.9	-	14.4	-	20.9
Virginia State College at Norfolk	24.2	23.0	17.7	20.1	21.7
Norms based on 90 degree-granting publicly controlled institutions[a]					
Median	11.5	-	10.6	-	-
80th Percentile	15.1	-	14.5	-	-

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[a] James I. Doi and Keith L. Scott, Normative Data on the Utilization of Instructional Space in Colleges and Universities. Association of Collegiat Registrars, July 1960.

The summary data shown in Tables 40 and 41 permit some interesting comparisons between and among Virginia's state-controlled institutions of higher education; comparison with available national norms is also possible. Table 40 shows that the average room-periods of use per week for all kinds of instructional rooms combined ranges from a low of 11. 1 per week at Virginia Military Institute to a high of 29. 3 at Virginia State College-Norfolk. The extremes are equally far apart on each of the four kinds of instructional rooms. The implications of these data for priorities in the needs for additional classroom and laboratory facilities are clear.

Two of the four institutions having the highest utilization of general classrooms, Old Dominion College and Richmond Professional Institute, maintain evening-class programs. The lengthened school day permits a better utilization of instructional rooms, in comparison with institutions that do not offer many evening classes. Both institutions, however, report very limited use of classrooms and laboratories on Saturdays. Virginia State College at Norfolk, which has the highest rates of instructional space utilization shown for any of the institutions in Tables 40 and 41, has laboratory classes on Saturdays, but reports relatively limited use of its classrooms after 5:00 p. m. Monday through Friday for its college-level academic program; the reported statistics exclude rooms used by the fairly extensive evening program of vocational-technical classes at Virginia State College -- Norfolk. The fourth institution, Radford College, in the group having the highest utilization rates, reports no evening classes but does make extensive use of its instructional rooms on Saturdays.

The final line of data on Table 40 presents room-period utilization data for general classrooms and laboratories at Indiana University, also for the fall of 1964. None of the Virginia institutions approaches the utilization figure for general classrooms at Indiana University, though four Virginia institutions have a higher room-period utilization of instructional laboratories than Indiana University. It should be noted that Indiana University, like a number of the Virginia institutions, is located in a relatively small city and does not maintain an extensive program of evening classes.

The norms furnished by the Doi and Scott study, shown in Table 40, indicate that only four of the state-controlled colleges and universities of Virginia are much below the median of other institutions throughout the country in the room-period utilization of general classrooms; six Virginia institutions are below the national median for room-period utilization of instructional laboratories. At the other end of the scale are four of Virginia's state-controlled institutions that are well above the 80th percentile on national norms in their room-period utilization of general classrooms; two of these four are also far above the 80th percentile in the national norms for room-period utilization of instructional laboratories. (The 80th percentile is the point in the rank order list of institutions below which 80 per cent of the institutions fall, with 20 per cent reporting higher utilization.) National norms are not available for the two other types of instructional rooms shown in Table 40, seminar rooms and auditoriums, but these categories usually comprise only a small percentage of the total rooms used for instructional purposes.

If the room-period utilization of instructional rooms at Radford College is taken as a possible standard for Virginia institutions, it is clear that Longwood College and Mary Washington College, which are similar to Radford College in program and type of student, could accommodate in their present instructional rooms twice the number of students they enrolled in the fall of 1964. Such a conclusion, it should be noted, relates only to instructional rooms, and does not take into account the limitations on enrollments that may possibly be imposed by lack of sufficient housing facilities for students, or lack of faculty members, or lack of qualified applicants for admission. The data also do not take into account the quality of the instructional space currently in use; it is possible that some institutions are at present using unsuitable space that should be replaced or abandoned completely for instructional purposes. Also, special types of rooms are sometimes needed to care for specialized features of the instructional programs. In general, however, the institutions that have a low utilization of their instructional rooms should not add more space of this type until their enrollment increases and until other plant facilities are brought into balance.

The data of Table 41, on student-station-period utilization, show much the same picture as Table 40 on room-period utilization. Again, the range from low to high is very wide. At Virginia Military Institute a student-station is occupied on the average only 6.1 periods per week, while a figure three or more times as much is shown for three institutions--Old Dominion College with 18.3 occupancies per week, Radford College with 20.9, and Virginia State College at Norfolk with 21.7. The 13 institutions are approximately in the same rank order on student-station-period utilization in Table 41 as on room-period utilization in Table 40. The University of Virginia, however, falls considerably lower on student-station-period utilization than on room-period utilization. The same seven of the Virginia institutions are at or above the statewide average in both Tables 40 and 41. Five are well below national medians on student-station-period utilization of general classrooms, and there are also five below the national medians on instructional laboratories. But there are six Virginia institutions at or above the 80th percentile on national norms for student-station utilization of general classrooms, and three of these are also above the 80th percentile on national norms for instructional laboratories.

It is clear from Tables 40 and 41 that needs for instructional space have not been equitably met in the past in the state-controlled degree-granting institutions in Virginia. Improvement in instructional space utilization for the State as a whole will have to be made chiefly through growth in enrollments, without corresponding additions to instructional facilities, at the institutions now ranking low on utilization. No arbitrary standard should be set, such as the achievement of utilization at the 80th percentile on national norms, before allowing additions to existing instructional facilities at any institution. But utilization data, along with other pertinent factors, should always be taken into account in considering the requests of the colleges and universities for new buildings for instructional purposes.

Utilization by Day of the Week and Hour of the Day

One source of information as to where improvements in utilization levels might be made is data on utilization of facilities by days of the week and hours of the day.

Data on utilization of classroom by days of the week for each of the institutions are shown in Table 42. This table gives the average number of room periods of use per room per day. The figures represent data for daytime use only. Table 43 shows data for use of laboratories by day of the week.

According to the data of these two tables, there appears to be a general practice of class schedules concentrated on Monday, Wednesday, and Friday for the classroom use, and on Tuesday and Thursday for laboratory use, in a number of the institutions. A modification of this rather traditional pattern would yield potential for higher utilization levels.

Theoretically an institution might use its general classrooms and instructional laboratories to an average of at least nine periods on each of the first five days of the week, assuming classes could meet at each hour from 8:00 a. m. to 4:50 p. m. , and to four periods on Saturday mornings. In only two of the institutions does the average use of classrooms reach six periods on any day of the week, and the highest average for any institution for any day of the week is 6. 4 periods of use. Radford College is the only institution that approaches the maximum use of

Table 42. CLASSROOMS: ROOM-PERIOD UTILIZATION BY DAY OF THE WEEK, ALL INSTITUTIONS
Average Number of Room Periods Per Room Per Day: Fall 1964 (Day-Time)

Institution	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
The College of William and Mary	5.0	3.8	4.4	4.0	4.6	2.4
Longwood College	3.2	2.3	3.1	2.4	3.0	1.3
Madison College	5.3	3.5	5.4	3.4	4.8	2.0
Mary Washington College	3.7	2.8	3.8	2.8	3.6	1.6
Medical College of Virginia	3.4	3.8	2.7	2.8	2.3	.7
Old Dominion College	5.2	4.7	5.0	4.7	4.6	-
Radford College	6.1	4.6	6.1	4.6	6.0	3.4
Richmond Professional Institute	4.1	4.3	4.0	4.2	3.7	.3
University of Virginia	3.7	3.0	3.8	3.1	3.5	1.5
Virginia Military Institute	2.3	2.1	2.3	2.2	2.0	1.8
Virginia Polytechnic Institute	3.7	3.4	3.4	3.2	3.1	1.0
Virginia State College-Petersburg	4.3	3.4	3.8	3.1	4.0	.7
Virginia State College-Norfolk	6.4	6.3	5.5	6.4	5.5	-

Table 43. TEACHING LABORATORIES: ROOM-PERIOD UTILIZATION BY DAY OF THE WEEK, ALL INSTITUTIONS
Average Number of Room Periods Per Room Per Day: Fall 1964 (Day-Time)

Institution	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
The College of William and Mary	2.7	3.1	2.2	2.9	3.1	.6
Longwood College	2.0	2.3	2.1	2.5	1.2	.3
Madison College	3.6	3.3	3.5	3.2	3.1	1.1
Mary Washington College	1.4	2.0	1.6	2.2	1.3	.2
Medical College of Virginia	3.3	2.9	2.5	2.7	2.6	.5
Old Dominion College	3.4	3.2	3.2	3.1	2.0	-
Radford College	3.2	3.8	3.6	3.8	2.9	1.2
Richmond Professional Institute	3.9	4.4	3.5	3.9	3.6	.1
University of Virginia	2.3	2.4	2.3	2.0	2.3	1.0
Virginia Military Institute	1.2	1.3	1.4	1.3	1.1	.3
Virginia Polytechnic Institute	4.0	3.6	4.1	3.4	3.6	1.7
Virginia State College-Petersburg	3.2	3.1	2.9	2.7	2.7	.3
Virginia State College-Norfolk	4.7	4.3	4.8	4.7	3.7	2.1

its classrooms on Saturday morning, with an average of 3. 6. Radford College, Old Dominion College, and Virginia State College-Norfolk all have comparatively heavy use of classrooms for each of the five days of the week; the two last mentioned have no Saturday classes. Madison College has a relatively heavy use of its classrooms Mondays, Wednesdays, and Fridays, and also has a substantial use on Saturday mornings. Table 43 shows that in none of the institutions is the average use of teaching laboratories more than 4. 8 periods on any day of the week. At Virginia Military Institute the average use of laboratories does not get above 1. 4 hours any day of the week.

A similar, but perhaps more dramatic illustration of the problem of schedules related to levels of utilization can be seen from Tables 44 and 45. These tables summarize data on utilization by hour of the day for each of the institutions. Here again there appears a rather typical situation of (1) little or no use of the facilities during the noon hour and (2) rapid decrease in the utilization levels after 3:00 p. m.

If an institution had all its classrooms occupied by classes at any given hour for each day of the week, its average utilization, as shown in Table 44, would be 6. 0 for morning classes and 5. 0 for afternoon classes. Radford College approaches this theoretically complete use at the 10:00 and 9:00 hours. The College of William and Mary and Old Dominion College also have relatively high utilization of classrooms at these hours. The heavy hours of use at Virginia State College-Norfolk

Table 44. CLASSROOMS: ROOM-PERIOD UTILIZATION BY HOUR OF THE DAY--ALL INSTITUTIONS
Average Number of Room Periods Per Room: Fall 1964

Institution	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5 and After	Total
The College of William and Mary	2.7	4.8	4.6	4.0	2.0	2.7	2.1	1.1	0.2	1.6	25.8
Longwood College	2.8	2.7	2.7	2.5	0.1	1.6	1.7	0.9	0.3	0.2	15.5
Madison College	3.6	4.1	4.4	3.3	0.7	3.2	2.7	2.2	0.2	0.9	25.3
Mary Washington College	2.9	4.3	3.9	2.6	0.2	0.2	2.4	1.6	0.3	0.2	18.5
Medical College of Virginia	1.5	2.7	2.1	2.1	1.1	1.9	2.5	1.3	0.5	0.1	15.8
Old Dominion College	3.9	4.5	4.5	4.0	1.1	3.7	2.5	0.8	0.1	7.7	31.9
Radford College	4.4	5.3	5.5	4.8	2.2	1.9	3.6	2.4	0.7	0.8	31.6
Richmond Professional Inst.	2.3	3.1	3.5	3.0	2.2	2.8	1.3	0.7	0.6	9.9	29.3
University of Virginia	2.1	3.7	3.8	3.5	2.4	0.4	1.2	1.0	0.5	1.3	19.9
Virginia Military Institute	3.1	2.5	2.2	2.5	1.6	-	0.5	0.4	-	-	12.8
Virginia Polytechnic Inst.	4.1	4.4	4.0	3.2	0.2	2.0	1.6	0.7	0.2	-	20.4
Virginia State College - Petersburg	3.3	3.1	3.4	2.9	0.5	1.7	2.5	1.5	0.4	0.5	19.8
Virginia State College - Norfolk	4.5	4.6	4.5	4.1	0.5	2.3	4.4	3.4	1.8	0.9	30.9

Table 45. TEACHING LABORATORIES: ROOM-PERIOD UTILIZATION BY HOUR OF THE DAY--ALL INSTITUTIONS
Average Number of Room Periods Per Room: Fall 1964

Institution	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5 and After	Total
The College of William and Mary	1.7	1.6	1.4	1.7	0.2	2.3	2.7	2.2	0.8	0.2	14.8
Longwood College	0.9	1.3	1.4	1.6	0.1	0.5	2.1	2.0	0.5	0.2	10.6
Madison College	1.9	3.1	2.8	2.9	0.5	2.3	2.1	1.4	0.8	-	17.8
Mary Washington College	1.0	1.4	1.5	1.2	0.3	0.6	1.4	1.1	0.2	0.2	8.9
Medical College of Virginia	0.9	1.3	2.3	2.0	1.0	0.5	2.0	2.3	2.2	0.2	14.7
Old Dominion College	1.2	1.8	2.2	1.7	-	2.5	2.5	2.2	0.8	2.8	17.6
Radford College	1.1	1.8	3.8	2.6	1.2	0.4	3.1	2.6	1.9	0.7	19.2
Richmond Professional Inst.	0.4	2.6	3.2	3.3	0.8	1.7	3.3	3.0	2.3	4.9	25.5
University of Virginia	1.2	2.0	3.2	2.1	2.0	0.5	0.6	0.6	0.1	-	12.3
Virginia Military Institute	0.6	0.3	0.4	0.7	0.9	-	1.9	1.9	-	-	6.7
Virginia Polytechnic Inst.	1.4	2.0	2.3	1.8	0.8	2.8	3.0	2.4	1.3	2.0	19.8
Virginia State College at Petersburg	1.9	2.4	2.5	2.0	0.1	1.4	2.1	1.9	0.6	0.8	15.8
Virginia State College at Norfolk	1.8	4.5	4.1	4.0	0.6	2.0	3.3	2.5	1.5	1.5	25.8

are 8:00 and 9:00. Virginia Polytechnic Institute and Madison Colege are the only additional institutions, other than those mentioned, that get more than 4.0 hours of use weekly out of classrooms at any hour of the day. Table 45 shows that Virginia State College-Norfolk is the ony institution that gets an average of as much as four hours of use weekly of its laboratories at any hour of the day.

It seems clear that careful attention to uniform distribution of classes would yield potential for increased utilization levels as reflected by room-period and student-station-period measures.

CHAPTER VI

THE PROJECTION OF FUTURE INSTRUCTIONAL PLANT NEEDS

The data presented in Staff Report #10 permit a rough calculation of the needs of the state-controlled institutions of higher education in Virginia for additions to their instructional plant facilities during the next fifteen years. Such an estimate involves assumptions about a number of factors, among which the following may be mentioned: (1) the increases in the number of students who will have to be accommodated year by year; (2) the probable increases in the average number of hours per week the full-time student will be required to spend in instructional rooms; (3) the improvement that can be expected in the utilization of instructional space, through tighter scheduling practices and the use of more hours in the week; (4) the differential demands of instructional programs for various kinds of space, such as classrooms, laboratories, library, faculty offices, and research rooms; (5) the costs of construction, which differ for the different kinds of facilities, and which also change from year to year, with the general trend being upward; (6) the rate of replacement of existing buildings because of obsolescence and depreciations; (7) the costs of remodeling existing buildings to adapt them to changing instructional patterns of use; (8) improvements in the provision of some needed kinds of space, such as faculty offices.

A calculation has been carried through by the consultants to indicate the needs for additional instructional plant facilities for the entire group of four-year state-controlled institutions of higher education. The calculation relates only to the total needs for all state-controlled colleges and universities, and is not broken down into the specific needs of each individual institution. Certain capital costs were excluded from the calculation, particularly: (1) the costs of the contents and equipment of new instructional buildings; (2) possible needs for replacement of some buildings as a part of a total campus improvement plan, rather than because of obsolescence or depreciation or the need for facilities to care for additional students. Facilities for medical education were also excluded from the calculation. The calculation yields results in terms of the square feet of floor area and the dollar amounts of capital outlay needed for new instructional plant construction for each biennium up to 1970 and for two subsequent five-year periods to 1980.

Because of the large number of assumptions that had to be made by the consultants in arriving at definite figures for square feet of additional plant space for instructional purposes and the dollar costs of the capital outlays required to provide this space, and also because of the very complex form in which the calculation must be presented, it is not included in Staff Report #10. Instead, it has been filed with the Commission on Higher Education, as a model which planning agencies in the State, such as the State Council of Higher Education, can use in making long-range projections of the need for instructional plant facilities in the state-controlled institutions. In other words, the value of the calculation is not so much in the findings about the actual extent of the needs for construction, but rather in the method by which such needs are estimated for the years that lie ahead. The specific assumptions used in the calculation may be changed in the light of further experience, and this would change the resulting estimates of needs for square feet of instructional space and the capital outlay costs of providing that space. It may be reported in general terms, however, that the calculation, based on the assumptions by the consultants and including a higher rate of space utilization than prevails at present in many of the Virginia institutions, results in figures that approximately triple the present gross square feet of instructional space by 1980. This rate of increase in physical plant facilities is not out of line with past experience in the State's institutions of higher education.